

## ATHLETIC CONCUSSION REGULATIONS

### Section I. What is a concussion?

A concussion is defined as a transient alteration in brain function without structural damage, but with other potentially serious long-term ramifications. In the event of a concussion, the brain sustains damage at a cellular level. The damage to these cells disrupts brain chemistry, causing restricted blood flow and ultimately altered brain function. Concussions are difficult to diagnose because the damage cannot be seen. **It is important to understand that every concussion presents itself differently. A concussed athlete may exhibit several or only a few symptoms and loss of consciousness is rare in most concussion cases.** A MRI or CT scan cannot diagnose a concussion, but they can help rule out a more serious brain injury to a student athlete. Because concussions are difficult to detect, it is imperative that all athletes, coaches, parents/guardians, school nurse, athletic director, athletic trainer, and other school personnel understand the policy and procedures for treatment of a concussion. All student athletes must obtain medical approval before returning to athletics following a concussion.

### Section II. Mechanism of injury:

A concussion is caused by a bump, blow or jolt to the head or body. Any force that causes the brain to bounce around or twist within the skull can cause a concussion. A bump, blow, or jolt to the head or body can be caused by either indirect or direct trauma. The two direct mechanisms of injury are coup and contra-coup. A coup injury is when the head is stationary and struck by a moving object such as another player's helmet, a ball, or sport implement, causing brain injury at the location of impact. A contra-coup injury occurs when the head is moving and makes contact with an immovable or slowly moving object as a result of deceleration, causing brain injury away from the site of impact. Understanding the way in which an injury occurred is vital in understanding and looking out for athletes who may exhibit symptoms of a concussion so these athletes can receive the appropriate care.

### Section III. Signs and Symptoms:

Signs (what you see)

- Confusion
- Forgets plays
- Unsure about game, score, opponent
- Altered coordination
- Balance problems
- Personality change
- Slow response to questions
- Forgets events prior to injury (retrograde amnesia)
- Forgets events after injury (anterograde amnesia)
- Loss of consciousness (any duration)
- **Unreactive/dilated/unequal pupils**
- **Vacant stare/glossy eyed**

Symptoms (reported by athlete)

- Headache
- Fatigue
- Nausea or vomiting
- Double vision/blurry vision
- Sensitivity to light (photophobia)
- Sensitivity to noise or ringing in the ears (tinnitus)

- Feels sluggish
- Feels foggy
- Problems concentrating
- Problems remembering
- Trouble with sleeping/excessive sleep
- Dizziness
- Sadness
- Seeing stars
- Nervousness
- Irritability
- Inappropriate emotions

If any of the above signs or symptoms is observed after a suspected blow to the head, jaw, spine or body, they may be indicative of a concussion and the student athlete **MUST** be removed from play immediately and not allowed to return until cleared by an appropriate allied health professional. **A written documentation will be required from health care provider forwarded to school nurse and athletic trainer.**

#### Section IV. Management and Referral Guidelines:

1. When an athlete loses consciousness for any reason, the athletic trainer will start the EAP (emergency action plan) by activating EMS; check ABC's (airway, breathing, circulation); stabilize the cervical spine; and transport injured athlete to appropriate hospital via ambulance. If the athletic trainer is not available, the coach should immediately call EMS, check ABC's and not move the athlete until help arrives.
2. Any athlete who is removed from competition or event and begins to develop signs and symptoms of a worsening brain injury will be transported to the hospital immediately in accordance with the EAP. Worsening signs and symptoms requiring immediate physician referral include:
  - Amnesia lasting longer than 15 minutes
  - Deterioration in neurological functions
  - Decreasing level of consciousness
  - Decrease or irregularity of respiration
  - Decrease or irregularity in pulse
  - Increase in blood pressure
  - Unequal, dilated, or unreactive pupils
  - Cranial nerve deficits
  - Any signs or symptoms of associated injuries, spine, or skull fracture or bleeding
  - Mental-status changes: lethargy, difficulty maintaining arousal, confusion, agitation
  - Seizure activity
  - Vomiting/worsening headache
  - Motor deficits subsequent to initial on-field assessment
  - Sensory deficits subsequent to initial on-field assessment
  - Balance deficits subsequent to initial on-field assessment
  - Cranial nerve deficits subsequent to initial on-field assessment
  - Post-concussion symptoms worsen
3. After a student athlete sustains a concussion, the athletic trainer will **use the Standardized Assessment for Concussion (SAC), Balance Error Scoring System (BESS), and Signs and Symptoms checklist** to assess and document the student athlete's concussion. On the signs and symptoms checklist, the athletic trainer will also check pulse and blood pressure of each student athlete with a suspected concussion. After the initial evaluation of a concussion, **all signs and symptoms will be documented and compared to student's baseline SAC and BESS scores.**
4. Any athlete who is symptomatic but stable is allowed to go home with his/her parents/guardians following head injury.

- A. If the head injury occurs at practice, parents/guardian(s) will be notified and must come and pick up the student athlete and talk to the certified athletic trainer in person.
- B. If the injury occurs at a home-field game or event the student athlete may go home with the parent/guardian after talking with certified athletic trainer.
- C. If the injury occurs at an away competition, outside of a school sanctioned event or an athletic trainer is not present. Parent/guardian(s) must notify their athletic trainer and/or school nurse WITHIN 1 BUSINESS DAY of the injury.**
- D. Parents/guardians will receive important information prompting immediate referral to local emergency room as well as return to play requirements from the certified athletic trainer.

#### V. Gradual Return to Play Protocol:

1. Student athletes, with the consent of their parents/guardians, **will take the Standardized Assessment of Concussions (SAC) and the Balance Error Scoring System (BESS) prior to the start of their season and in the case the athlete sustains a concussion.** The SAC and BESS are tools that help manage concussions, determine recovery from injury, and are helpful in providing proper communication between coaches, parents, and clinicians. **The SAC test measures a student's cognitive function including memory and verbal skills, while BESS examines a student's balance and spatial awareness. It is MANDATORY for all student athletes to undergo baseline concussion screenings such as the SAC and BESS in accordance with Massachusetts state law.** The law states that all public schools must develop safety protocols on concussions and all public schools must receive information on past concussion history.

2. Beginning with the 2012-2013 school year, each student athlete will complete a baseline test at the beginning of his or her sport season. All student athletes and club cheerleading members will undergo **SAC and BESS** testing. Student athletes will be retested every other year. If a student athlete plays more than one sport during the academic year, their test will remain valid. For example, if a soccer student athlete also plays basketball in the winter, the student athletes will not have to take the **SAC and BESS** Baseline tests again in the winter. If a student athlete's posts scores below the norm, the student athletes will be re-tested at another time with either a certified athletic trainer or school nurse. Student athletes cannot begin practice until a valid baseline score is obtained during their designated time to take the tests.

- A. At the beginning of every sport season, student athletes are required to complete a Pre-Participation Concussion History form (from Mass DPH) and return it to the athletic department. This information will be recorded in the student information system for tracking purposes.
- B. Following any concussion, the athletic trainer must notify the athletic director and school nurses.
- C. Following a concussion the student athlete will complete a symptoms checklist as well as take a post-injury SAC and BESS tests within 24-48 hours following head injury. **STUDENT ATHLETES WILL NOT BE ALLOWED TO MOVE ON THE FUNCTIONAL/PHYSICAL TESTING UNTIL HE/SHE HAS BEEN ASYMPTOMATIC FOR OVER 24 HOURS AND SAC AND BESS HAS RETURNED TO NORMAL BASELINE SCORES.**
- D. If, after the first post-injury SAC and BESS test, the athlete is not back to his/her baseline, the parents/guardians will be notified, and the student athlete may be referred to their healthcare provider and must have a note related to concussion treatment signed by a physician, physician assistant, licensed neuropsychologist or nurse practitioner starting when the athlete is allowed to return to play.
- E. Student athletes who continue to exhibit concussion symptoms for a week or more must be evaluated by a physician before returning to play.
- F. Once a student athlete's post-injury test scores have returned to baseline score, the student athlete will go through a 5 day return to play protocol. The student athlete must be asymptomatic for all functional and physical tests to complete the return to play (RTP) protocol. If at any stage during the RTP protocol, the athlete has symptoms; the athlete waits again until 24 hours asymptomatic and will re-start the RTP protocol once asymptomatic. A certified athletic trainer will administer all tests.

#### **Gradual Return to Play Protocol:**

- A. Day 1: (30-40% maximum exertion): Low levels of light physical activity. This will include walking or stationary bike with no resistance for 15-20 minutes. Light isometric strengthening and stretching exercises
- B. Day 2: (40-50% maximum exertion): Moderate levels of physical activity. Treadmill, jogging, stationary bike, or elliptical for 25-30 minutes. Lightweight strengthening exercises and more active dynamic stretching can be included.
- C. Day 3: (60-80% maximum exertion): Non-contact sports specific drills. Running, high intensity stationary bike or elliptical for 30-45 minutes. Completing regular weight training. Start agility drills (ladder, side shuffle, zigzags, carioca, box jumps, and hurdles).
- D. Day 4: (80% maximum exertion): Limited, controlled sports specific practice and drills. **Athlete may participate in practice but only in non-contact drills.**
- E. Day 5: Full contact and return to sport with monitoring of symptoms. **Preferably day of full practice involvement before game play.**

#### Section VI. School Nurse Responsibilities

- 1. Assist in testing all student athletes with baseline and post-injury concussion testing.
- 2. Participate and complete the CDC training course on concussion. A certificate of complete will be recorded by the nurse leader yearly.
- 3. Observe students with a concussion for a minimum of 30 minutes.
- 4. If symptoms are present, notify parent/guardian(s) and instruct parent/guardian(s) that student must be evaluated by an MD.
- 5. If symptoms are not present, the student may return to class.
- 6. If symptoms appear after a negative assessment, MD referral is necessary.
- 7. Allow students who are in recovery to rest in clinic when needed.
- 8. Develop plan for students regarding pain management.
- 9. School nurse will notify teachers and guidance counselors of any students or student athletes who have academic restrictions or modifications related to their concussion.
- 10. Educate parents and teachers about the effects of concussion and returning to school and activity.
- 11. If injury occurs during the school day, inform administrator and completely accident/incident form.
- 12. **Keep record of student's physical exam dates and concussion dates.**

#### Section VII. School Responsibilities

- 1. Review and if necessary, revise the concussion policy every 2 years.
- 2. Once the school is informed of the student's concussion, a contact or "point person" should be identified **(e.g. the certified athletic trainer and/or school nurses).**
- 3. "Point person" will work with the student on organizing work assignments, making up work, and giving extra time for assignments and tests/quizzes.
- 4. Assist teachers in following the recovery stage for student.
- 5. Convene meeting and develop rehabilitative plan.
- 6. Decrease workload if symptoms appear.
- 7. Recognize that the student's ability to perform complex math equations may be difficult from the ability to write a composition depending on the location of the concussion in the brain.
- 8. Educate staff on the signs and symptoms of concussions and the educational impact concussions may have on students.
- 9. Include concussion information in student handbooks.
- 10. Develop a plan to communicate and provide language-appropriate educational materials to parents with limited English proficiency.

#### Section VIII. Athletic Director Responsibilities:

- 1. Provide parents, athletes, coaches, and volunteers with educational training and concussion materials yearly.
- 2. Ensure that all educational training programs are completed and recorded.

3. Ensure that all students meet the physical exam requirements consistent with 105 CMR 200.00 prior to participation in any extracurricular athletic activity.
4. Ensure that all students participating in extracurricular athletic activity have completed and submitted their pre-participation forms, including **Massachusetts DPH concussion history form**, MIAA form, and health history form.
5. Ensure that athletes are prohibited from engaging and any unreasonably dangerous athletic technique that endangers the health or safety of an athlete, including using a helmet or any other sports equipment as a weapon.
6. Ensure that all head injury forms are completed by parent/guardian(s) or coaches reviewed by the coach, athletic trainer, and school nurse.
7. Inform parent/guardian(s) that, if all necessary forms are not completed, their children will NOT participate in athletic extracurricular activities.

Section IX. Parent/Guardian Responsibilities:

1. Complete and return **Massachusetts DPH Pre-participation** concussion history form to the athletic department.
2. Inform school if student sustains a concussion outside of school hours. Complete new concussion history form following injury.
3. **Who to notify when your student suffers a concussion outside of school:**
  - **School nurse**
  - **Athletic trainer (if not present at the time of injury)**
  - **And/or Athletic director**
4. **Any note or paperwork obtained while seeking outside medical attention needs to be brought to the school nurse and/or athletic trainer BY THE NEXT BUSINESS DAY.**
5. Watch for changes in your child that may indicate that your child does have a concussion or that your child's concussion may be worsening. Report to a physician:
  - a. Loss of consciousness
  - b. Headache
  - c. Dizziness
  - d. Lethargy
  - e. Difficulty concentrating
  - f. Balance problems
  - g. Answering questions slowly
  - h. Difficulty recalling events
  - i. Repeating questions
  - j. Irritability
  - k. Sadness
  - l. Emotionality
  - m. Nervousness
  - n. Difficulty with sleeping
6. Encourage your child to follow concussion protocols.
7. Enforce restrictions on rest, electronics, and screen time.
8. Reinforce recovery plan.
9. Request a contact person from the school with whom you may communicate about your child's progress and academic needs.
10. Observe and monitor your child for any physical or emotional changes
11. Request to extend make up time for work if necessary.
12. Recognize that your child will be excluded from participation in any extracurricular athletic event if all forms are not completed and on file with the athletic department **OR if a return to play protocol is not completed following head injury.**

#### Section X. Student and Student Athlete Responsibilities:

1. Complete baseline **SAC and BESS** prior to participation in athletics.
2. Return required **DPH pre-participation concussion history form** prior to participation in athletics.
3. Report all symptoms to athletic trainer and/or school nurse.
4. Bring any care plans, notes, forms or documents from MD appointments to school nurse and/or athletic trainer
5. Follow recovery plan.
6. REST
7. NO ATHLETICS!
8. BE HONEST!
9. Keep strict limits on screen time and electronics
10. Don't carry books or backpacks that are too heavy
11. Tell your teachers if you are having difficulty with your class work.
12. See the athletic trainer and/or school nurse for pain management.
13. Return to sports only when cleared by physician or physician assistant and athletic trainer.
14. Follow gradual return to play guidelines
15. Report any symptoms to the athletic trainer and/or school nurse and parent/guardian(s) if any occur after return to play.
16. Return medical clearance forms to the athletic trainer prior to return to play.
17. Students who do not complete and return all required trainings, testing and forms will NOT be allowed to participate in sports.

#### Section XI. Coach and Band Instructor Responsibilities:

1. Participate in concussion education course offered by the national federation of state high school associations (NFHS) on a yearly basis. Complete certificate of complete and return to the athletic department.
2. Ensure all student athletes have completed **SAC and BESS** baseline testing before participation.
3. Ensure all student athletes have returned concussion history and health history forms prior to participation in athletics.
4. Complete a head injury form if their players suffers a head injury and athletic trainer is not present at the athletic event. This form must be share with athletic trainer and school nurse.
5. Remove from play and student athlete who exhibits signs and symptoms of a concussion.
6. **DO NOT ALLOW STUDENT AHLETES TO RETURN TO PLAY UNTIL CLEARED BY A PHYSICAN AND ATHLETIC TRAINER.**
7. Follow gradual return to play guidelines.
8. Refer any student athlete with returned signs and symptoms back to athletic trainer.
9. Any coach, band instructor, or volunteer coach for extracurricular activities shall not encourage or permit a student participating in the activity to engage in any unreasonably dangerous athletic technique that unnecessarily endangers the health of a student athlete, including using a musical instrument, helmet or any other sports equipment as a weapon.

#### Section XII. Post Concussion Syndrome:

Post concussion syndrome is a poorly understood condition that occurs after a student athlete receives a concussion. **It can be defined as a substantial time period in which a concussed individual remains symptomatic. On average, student athletes who sustain a concussion are symptomatic for a few days up to a week depending on the severity of the injury. In the case of individuals with post concussion syndrome, the symptoms may last up to several months or even years until neurocognitive function returns to normal.** Therefore, all school personnel must pay attention to and closely observe all student athletes for post concussion syndrome and its symptoms. Student athletes who are still suffering from concussion symptoms are not ready to return to play. Signs and symptoms of post concussion syndrome are:

- Dizziness
- Headache with exertion

- Tinnitus (ringing in the ears)
- Fatigue
- Irritability
- Frustration
- Difficulty in coping with daily stresses
- Impaired memory or concentration
- Eating and sleeping disorders
- Behavioral changes
- Decreases in academic performance
- Depression
- Visual disturbances

### Section XIII. Second Impact Syndrome:

Second impact syndrome is a serious medical emergency. It is the result of an athlete returning to play and competition too soon following a concussion. Second impact syndrome occurs because of rapid brain swelling and herniation of the brain after a second head injury is sustained before the symptoms of a previous head injury have been resolved. **The second impact that a student athlete may receive may be a minor direct blow to the head or it may be a blow to the chest or back creating enough force to “snap” the athlete’s head sending acceleration/deceleration forces to an already compromised brain.**

After a second impact, a student athlete usually does not become unconscious, but appears to be dazed. The student athlete may remain standing and be able to leave the field under his/her own power. Within fifteen seconds to several minutes, the athlete’s condition worsens rapidly with dilated pupils, loss of eye movement, and loss of consciousness potentially leading to coma and/or respiratory failure. The best way to handle second impact syndrome is to prevent it from occurring altogether. All student athletes who incur a concussion must not return to play until they are asymptomatic and cleared by an appropriate health care professional.

### Section XIV. Concussion Education:

It is extremely important to educate coaches, athletes and the community about concussions. On a yearly basis, all coaches must complete the online course called “Concussion in Sports: What You Need to Know”. This course is offered by the National Federation of State High School Associations (NFHS). Student athletes also need to understand the importance of reporting a concussion to their coaches, parents, athletic trainer, and **school nurse**. Every year parents will participate in education training on concussions. This training may include:

- CDC Heads-Up video training OR
- Training provided by the school district

The school district may also offer seminars, speakers, and discussion panels on the topic of concussions. Seminars offer an opportunity for the certified athletic trainer, athletic director, and school nurse to speak about concussions on the field at practices and games and to discuss the protocol and policy that the district has enacted. Providing education within the community will offer the residents and parents of athletes an opportunity to ask questions and voice their concerns on the topic of brain injury and concussions. When it comes to concussions, everyone needs to be aware of the potential dangers and remember that a concussion is a brain injury. Whenever anyone has a doubt about a student athlete with a concussion, SIT THEM OUT and seek assistance from appropriate healthcare professional.